University of Chicago
Pritzker School of Molecular Engineering
Convocation Speech (June 7, 2025)

Dean Mason, esteemed faculty, proud parents, and most importantly, the graduates of the University of Chicago PME Department Class of 2025.

I am excited to be here with you today. I have really been looking forward to this day because I love talking to people at the beginning of their journey. And that's exactly where you are today and I'm proud of you. I am even a little bit jealous of you. There is so much time ahead of you. Today, you are where I have always wanted to be --at the beginning, in motion, in transition.

You are joining the most exciting field in the world. The field of STEM—Science, Technology, Engineering, and Math. It is not just a set of skills. It's not a major – it is a way of thinking – it is a mindset - it's a passport to your future. You can go anywhere from here.

Today is about you, not me. But I want to tell you a story from my life that I hope will be useful as you think about the journey ahead. It's a story about the importance of STEM education and how it might impact your future.

In the summer of 1976, I arrived in Detroit as a Jewish refugee from Soviet Ukraine with $500 in my pocket and 4 suitcases, no knowledge of English and no connections. Like most of you, I am an engineer. I studied at the Polytechnic Institute in Kyiv, my hometown, focusing on thermal engineering. After graduating, I got a job at a state-owned organization that designed thermal power plants. Perhaps it doesn't sound that exciting.

I wasn't hopeful that I would get to put my engineering skills to use in America. The general view among even well-educated Soviet immigrants in Detroit at the time was that finding any kind of white-collar position was tough, but finding a job as an engineer? That was next-to-impossible.

There was a rumor among the Soviet immigrants in Detroit, a rumor that almost had become like a fairy tale, that there

was one young immigrant, a guy who had been an engineer in the Soviet Union, who had found an engineering job at Chrysler, and was making $13,000 a year. To us, that was a fortune, and it made the story sound so incredible that it seemed almost beyond belief. Years later, though, I actually met this legendary character, and it turned out to be true.

But in general, the expectations for us employment-wise were low. Immigrants were expected to take unskilled, manual jobs. You could clean fish or unload boxes at the supermarket. You could paint machines at a local factory.

But I was determined to put my skills and education to good use. I might not land a job with a $13,000 salary, but I thought that at least I should try to find some kind of role in thermal-power engineering. Every day I went to the library, found the addresses of engineering companies and electric utilities, and sent them my resume. Within six weeks of arriving in the US, I had sent out more than 200 resumes.

Of course, my letters either remained unanswered or got rejected. But then I heard from Bechtel Corporation, a big

engineering company, inviting me for an interview in Ann Arbor, Michigan. This was a daunting prospect. I understood almost no English and spoke even less. For some reason, Bechtel assigned a Chinese man to interview me who himself didn't speak very good English. I decided that whatever he said, I would just nod and say, "Yes." And that's what I did. It went on for 45 minutes, and I didn't understand a single word. But I got the job. And you know what? My salary was even more than $13,000 – it was $15,000 a year.

I was lucky that Bechtel saw beyond the surface. I couldn't speak English, but I was skilled in the language of engineering. I could write formulas. I could perform complex calculations. I could solve problems although I couldn't write reports.

Engineering gave me credibility without words. Those skills opened the door for me to everything that has come since. My engineering training gave me the discipline of thinking in numbers, systems, solving problems, and handling complexity. Those skills helped me rise through the

engineering ranks at Bechtel, then at Brown Boveri in Minnesota, and then at Fluor in Chicago, where I eventually became a lead engineer.

That same technical foundation helped me to see where there was a gap and opportunity in the market to start my first business. It helped me pass the GMAT and get accepted into the business school here at the University of Chicago. And today, as the founder and CEO of Invenergy, the world's largest privately held developer, owner, and operator of energy solutions, hardly a day goes by when I don't use my engineering mindset.

This experience led me to develop a theory I strongly believe in and want to share with you: ***you can teach an engineer business, but you can't teach a businessman engineering*.**

For decades, especially before the tech boom, engineering was considered a support role. Amazingly, even in the engineering companies I worked for early on in my career,

the people running the show weren't engineers. Businesspeople made the big decisions. Engineers were behind the curtain, making things work, but not steering the ship.

Then came the tech revolution.

Suddenly, innovation required technical knowledge. It wasn't enough to do financial engineering or have a good pitch. You had to understand how things actually worked. You have to able to create something new. People with technical backgrounds - people like you and me – we were the ones who could connect the dots, who could either improve existing things or imagine what didn't yet exist.

Back when I started, there was a common belief that engineers had to leave engineering to get ahead. You would get an MBA, move into finance or management, and slowly step away from the technical side of things. But today, that's no longer the rule. Now, deep technical knowledge is a superpower.

History backs this up. From ancient inventors to modern innovators, the people who've changed the world usually had a deep understanding of the science and technology of their time. From Leonardo da Vinci to Thomas Edison and Steve Jobs, we can see it again and again. Business leaders have always played an important role, but often, as facilitators, not originators.

In the 1980s, when I started out, "entrepreneur" was not a popular word. Entrepreneurs were mostly small-business owners, running restaurants, in services or other small businesses. But with innovation came bigger opportunities. And when the first signals of disruption in the energy sector appeared in the early 1980s, my engineering knowhow helped something to click for me. It made me realize that I have technical skills that many others didn't have. That was my moment to try something new, to take advantage of the opportunity but also to take a risk.

Let me say a few words about risk. People often misunderstand what risk really means. When I launched my

first business, I was not risking everything. I was risking time, maybe a few years that might not lead to anything. But I also knew I am a good engineer. If this doesn't work, I can go back and do what I was trained to do. I will be stronger for having tried.

Perhaps for some of you there will be the right moment for you to take a risk. Of course, it should be a well-calculated risk. You have a world-class education. You are in demand. You have very little to lose and a lot to gain. If you are ready, don't wait. You don't have to have it all figured out. You just have to start.

You might say, "If I take this job, will it still be there in five years?" Or "If I start something new, what if I fail?" Here's the truth. There is no job security anymore. Not the kind your parents or your grandparents had. There are very few 30-year careers with pensions and gold watches as retirement gifts. That is over.

So don't aim for safety. Aim for the opportunity to make an impact. Aim for relevance. Aim for meaning. If you do

something meaningful, if you're always learning, if you're always building, then you'll never be out of work. You'll never be irrelevant. You will also be in demand.

That is why I'm still working. I could have retired a long time ago, but I didn't. I am lucky enough that I am very comfortable. But I'm still at it because I'm still part of the transition. I am still building. I am still relevant and I'm still learning. That keeps me excited and pushing forward.

You don't retire when make a lot of money or when you reach certain age. You retire when you stop seeing what is ahead. When you stop being excited about what is next. Every day that I'm still engaged, that I'm still buzzing, that I'm challenging myself and others, that I am surrounded by younger people, those are successful days for me.

And here is why you can be successful. You — the Class of 2025 — you are entering a world that is in transition. A world of unprecedented complexity, remarkable technological progress, and profound societal challenges. The world you

are stepping into is one where the rules are changing. We're in the middle of a transformation in how we live, in how we work and how we think. In how we define what matters.

We have gone from the agricultural revolution to the industrial revolution that never ended to the high-tech revolution, to the energy transition to the age of AI. And we're not done. There is no end point. This is not a game where the buzzer goes off and it's over. There's no "final level."

In times like these, the role of the engineer is not simply to build better mouse traps or systems. It is to help build a better world.

The world is always changing; it is always in transition. But you are better equipped and have the skills to navigate those changes. That's the beauty of STEM. You're never stuck in one place. You're never obsolete. I always like to say that **I most excited not about what I know but about what I don't know.** I am aways on a journey and often I do not exactly know what is around the corner. This road keeps

going. And it's not a smooth or straight highway. It's a minefield. It's got potholes, cliffs, detours. But that's what makes it interesting and always challenging.

In that context, your skills make you an entrepreneur, whether you ever start your own company or not. "Entrepreneur" is not a title or a job description. It's about how you think. It's about being open to uncertainty. Open to the journey. Open to opportunity and ready for challenges.

And as well as being engineers and entrepreneurs, you're leaders. You may not see yourselves that way, at least not yet. But leadership is also not a title. It's a way of moving through the world. It is how you accept challenges and how you share successes. And the kind of leadership we need from engineers today is not about commanding attention or asserting authority. It is about something much harder. Something much more important. It is about listening. It is about communicating. It is about imagining futures that don't yet exist. It's about staying ahead of the curve.

So, because this is UChicago, and you are about to start your journeys, let me offer a simple framework to bear in mind as you go about building that future.

First, make your work visible.

So much of engineering happens behind the scenes: in code, in calculations, in prototypes tucked away in labs. But the impact of this work is always public. It is in the bridges we drive over, the water we drink, the devices that we use, the data that drives decisions, the energy that powers all of this. And yet, too often, we allow those systems to remain invisible, even to ourselves.

When I say, “make it visible,” I mean that you should develop the skill to explain what you’re doing. Not just to other engineers, but to the people your work affects.

I also encourage you to learn to see what the broader impact of what you do. Not just how it performs technically, but how it behaves socially. Who it helps. Who it excludes. Who benefits, and who pays the cost.

Second, make your work human. Make it about people.

Your engineering education has trained you to think in terms of efficiency, optimization, and scalability. Those are important. But they are not sufficient. Ultimately, your work is not about the system. It's about people.

The best engineers are the ones who never forget that what they build touches others. You should not be paralyzed by responsibility. You should be energized by it. Your choices matter. Your judgment matters. Your voice matters.

Third, recognize that engineering is a team sport.

You may have spent a lot of time working on something alone. Yes, you may trust your instincts and your expertise. But nothing great gets built by one person alone.

The best results are achieved by collaboration.

Learn to navigate across differences. Differences of background, expertise, and experience. Learn not just how to explain your ideas, but how to listen to theirs.

Our greatest challenges cannot be solved by any one discipline, or any one kind of thinker. They require many minds. Many voices. And engineers who know how to lead by including.

You will be more successful if you know not only how to build, but why it matters. Being not just a technical expert, but also an ethical actor. Being not only smart, but also wise.

Don’t chase the job that pays the most. Don’t chase prestige. Chase the thing that keeps you curious. Chase the thing that wakes you up in the morning and keeps you thinking at night. Success is doing what you love. It is doing what you are good at and where you are valued. It’s doing something meaningful.

You really are at the beginning of long careers. You are at the beginning of something that someday may become very big. Take your skills. Build on them. Keep learning. Keep listening. And keep making us and yourselves proud.

Congratulations PME Class of 2025!